



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,377	06/20/2003	Chien-Chou Hou	B-5130 621033-6	8506
36716	7590	03/09/2005	EXAMINER	
LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679			DEO, DUYN NGUYEN	
			ART UNIT	PAPER NUMBER
			1765	
DATE MAILED: 03/09/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/600,377

Applicant(s)

HOU ET AL.

Examiner

DuyVu n Deo

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/29/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7-10, 14-15, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Gardner et al. (US 6,204,130).

Gardner teaches an etching method comprising: providing a patterned polysilicon (claimed silicon) (col. 4, line 15-33); forming an oxide layer (claimed etching buffer layer) conformally on the surface and the top layer of the patterned polysilicon layer (col. 4, line 34-43); etching the oxide layer to reduce the thickness of the polysilicon layer (col. 4, line 46-col. 5, line 10). Since the oxide removed is made from the polysilicon, the exposed polysilicon would also be etched when the oxide is removed from the polysilicon surface, in which the thickness of the polysilicon would be reduced.

Referring to claims 7, 8, 14, 15 the polysilicon is patterned by using a photoresist layer (claimed patterned mask).

Referring to claims 2, 3, 9, 10, 14, 19, the oxide layer is formed by thermal oxidation of using oxygen (col. 4, line 34-41). This would form claimed silicon oxide (SiO<sub>2</sub>).

Referring to claims 6, 13, and 18, the thickness of the polysilicon pattern is 100-300 nm (col. 4, line 13).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 11, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner as applied to claims 1, 7, 14 above, and further in view of Schloesser et al. (US 5,977,589).

Referring to claims 4, 11, and 16, even though Gardner doesn't describe using gas such as Cl<sub>2</sub> for etching of the oxide; however, he suggests that plasma-chemistry can be used for the etching (col. 5, line 9). Schloesser teaches that Cl<sub>2</sub> can be used for etching oxide layer (col. 8, line 42-46). It would have been obvious for one skilled in the art to etch the oxide layer in light of Schloesser's teaching because he further teaches gas that is silent in Gardner in order to etch the oxide layer with a reasonable expectation of success.

5. Claims 5, 12, 17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gardner.

Unlike claimed invention, Gardner doesn't describe the thickness of the oxide (etching buffer layer) is about 5-20 nm. However, he teaches that the oxide layer growth can vary and suitably selected in consideration of the desired final thickness of the remaining polysilicon pattern (col. 4, line 44-54). Therefore, it would have been obvious for one skilled in the art to determine the thickness of the oxide layer through routine experimentation depending on the final desired thickness of the patterned polysilicon as suggested by Gardner.

Art Unit: 1765

Referring to claim 20, Gardner doesn't describe the thermal oxidation is performed at about 10-90 degrees C. However, it would have been obvious for one skilled in the art to determine the processing parameters including the T through routine experimentation in order to provide optimum T for the oxidation of the polysilicon with a reasonable expectation of success.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 11, 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 11 and 16 are indefinite because it is not clear about which etching step the gases are used for, the first or second etching. At this time they are for the second etching step.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-3:30; with alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1765

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DVD  
3/8/05

A handwritten signature in black ink, appearing to be 'J. L.' or similar, written below the date.